CLAIMS

1. A method of managing a queue in a shared memory, the method comprising:

setting a queue length limit associated with a queue to an initial value; and

increasing the queue length limit in response to a predetermined condition.

2. The method of claim 1, wherein the only adjustment to the queue length limit occurs when the initial queue length limit is set and when the queue length limit is increased in response to the predetermined condition.

3. The method of claim 1, increasing the queue length limit in response to the predetermined condition includes increasing the queue length limit by a fixed amount in response to the predetermined condition.

4. The method of claim 1, further comprising:

determining if the queue length limit is less than or equal to a maximum queue length;

wherein increasing the queue length limit in response to the predetermined condition includes increasing the queue length limit if the queue length limit is less than or equal to the maximum queue length.

5. The method of claim 1, wherein the predetermined condition is an overflow condition.

6. The method of claim 5, further comprising generating an interrupt in response to the overflow condition.

7. The method of claim 6, further comprising executing an interrupt service routine in response to the interrupt.

8. The method of claim 7, wherein the interrupt service routine increases the queue length limit in response to the overflow condition.

9. The method of claim 1, further comprise polling a memory location containing data indicative of whether the predetermined condition exists.

10. The method of claim 1, wherein the predetermined condition is a condition indicating that an overflow condition is likely to occur.

11. The method of claim 1, wherein the queue includes an ATM queue.

12. The method of claim 1, wherein increasing the queue length limit in response to the predetermined condition includes increasing the queue length limit for a plurality of queues in response to the predetermined condition.

13. Apparatus comprising a storage medium tangibly embodying program instructions for managing a queue in a shared memory, the program instructions including instructions operable to cause at least one programmable processor to:

set a queue length limit associated with a queue to an initial value; and

increase the queue length limit in response to a predetermined condition.

14. The apparatus of claim 13, wherein the only adjustment to the queue length limit occurs when the initial queue length limit is set and when the queue length limit is increased in response to the predetermined condition.

15. The apparatus of claim 13, wherein the program instructions operable to cause the at least one programmable processor to increase the queue length limit in response to the overflow condition further include program instructions operable to cause the at least one programmable processor to increase the queue length limit by a fixed amount in response to the predetermined condition.

16. The apparatus of claim 13, wherein the program instructions further include instructions operable to cause the at least one programmable processor to:

determine if the queue length limit is less than or equal to a maximum queue length;

wherein the instructions operable to cause the at least one programmable processor to increase the queue length limit in response to the predetermined condition increase the queue length limit if the queue length limit is less than or equal to the maximum queue size.

17. The apparatus of claim 13, wherein the predetermined condition is an overflow condition.

18. The apparatus of claim 17, wherein the at least one programmable processor generates an interrupt in response to the overflow condition.

19. The apparatus of claim 18, wherein the program instructions further include instructions operable to cause the at least one programmable processor to:

execute an interrupt service routine in response to the interrupt.

20. The apparatus of claim 19, wherein the interrupt service routine comprises the instructions operable to increase the queue length limit in response to the overflow condition.

21. The apparatus of claim 13, wherein the program instructions further include instructions operable to cause the at least one programmable processor to:

poll a memory location containing data indicative of whether the overflow condition exists.

22. The apparatus of claim 13, wherein the predetermined condition is a condition indicating that an overflow condition is likely to occur.

23. The apparatus of claim 13, wherein the queue includes an ATM queue.

24. The apparatus of claim 13, wherein the program instructions further include instructions operable to cause the at least one programmable processor to:

increase the queue length limit for a plurality of queues in response to the predetermined condition.

25. An asymmetric digital subscriber line interface unit, comprising:

an ADSL interface device adapted to receive and transmit data with at least one ADSL line;

a TDM bus interface device adapted to receive and transmit data with at least one TDM line;

an ATM mapping device, in communication with the ADSL interface device and the TDM bus interface device, that maps ATM cells directly to the at least one TDM line; and

a shared memory coupled to the ATM mapping device;

wherein the ATM mapping device is configured to:

set a queue length limit associated with a queue stored in the shared memory to an initial value; and

increase the queue length limit in response to a predetermined condition.

26. The line interface unit of claim 25, wherein the only adjustment to the queue length limit occurs when the initial queue length limit is set and when the queue length limit is increased in response to the predetermined condition.

27. The line interface unit of claim 25, ATM mapping device is configured to increasing increase the queue length limit by a fixed amount in response to the predetermined condition.

28. The line interface unit of claim 25, wherein the ATM mapping device is further configured to:

determine if the queue length limit is less than or equal to a maximum queue length;

increase the queue length limit if the queue length limit is less than or equal to the maximum queue length.

29. The line interface unit of claim 25, wherein the predetermined condition is an overflow condition.

30. The line interface unit of claim 29, wherein the ATM mapping device is configured to generate an interrupt in response to the overflow condition.

31. The line interface unit of claim 30, wherein the ATM mapping device is configured to execute an interrupt service routine in response to the interrupt.

32. The line interface unit of claim 31, wherein the interrupt service routine increases the queue length limit in response to the overflow condition.

33. The line interface unit of claim 25, wherein the ATM mapping device is configured to poll a memory location containing data indicative of whether the predetermined condition exists.

34. The line interface unit of claim 25, wherein the predetermined condition is a condition indicating that an overflow condition is likely to occur.

35. The line interface unit of claim 25, wherein the ATM mapping device comprises a inverse multiplexer.

36. The line interface unit of claim 35, wherein:

the TDM bus interface device is adapted to receive and transmit data with a plurality of TDM lines; and

the ATM mapping device is configured to map cells directly to the plurality of TDM lines.

37. The line interface unit of claim 25, wherein the at least one TDM line includes one of the following: an E1 line and a T1 line.

38. The line interface unit of claim 25, wherein the TDM interface is configured to communicate with the at least one TDM line over a TDM bus.

39. The line interface unit of claim 25, further comprising:

a plain old telephone service circuit in communication with the splitter and the TDM bus interface; and

a splitter in communication with the ADSL interface device and the plain old telephone service circuit on an upstream side and adapted to communicate with the at least one ADSL line on a downstream side.

40. The line interface unit of claim 25, further comprising:

a header translation device in communication with the ATM mapping device.

41. The line interface unit of claim 25, wherein the ATM mapping device is configured to:

increase the queue length limit of a plurality of queues in response to the predetermined condition.